

REMARKS

The present Amendment amends claims 1-20. Therefore, the present application has pending claims 1-20.

Claim 16 stands objected to due to informalities noted by the Examiner in paragraph 3 of the Office Action. Amendments were made to claim 16 to correct the informalities noted by the Examiner. Therefore, Applicants submit that this objection overcome and should be withdrawn.

Claims 2-6, 11-13, 18 and 20 stand rejected under 35 USC §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as their invention. Various amendments were made throughout claims 2-6, 11-13, 18 and 20 to bring them into conformity with the requirements of 35 USC §112, second paragraph. Therefore, Applicants submit that this rejection overcome and should be withdrawn.

Specifically, amendments were made to claims 2-6, 11-13, 18 and 20 to overcome the objections noted by the Examiner in paragraph 4 of the Office Action.

The Examiner's cooperation is respectfully requested to contact Applicants' Attorney by telephone should any further indefinite matter be discovered so that appropriate amendments may be made.

Applicants acknowledge the Examiner's indication in paragraph 13 of the Office Action that claims 7-10 and 19 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Amendments were made to claims 7-10 and 19 to place them in independent form including all the limitations of the base claim and

any intervening claims. Therefore, claims 7-10 and 19 are allowable as indicated by the Examiner.

Applicants also note that claims 2-5, 11-13, 18 and 20 were not rejected based upon any of the references of record. Thus, amending these claims so as to overcome the 35 USC § 112, second paragraph rejection now places these claims in condition for allowance. Accordingly, early allowance of claims 2-5, 11-13, 18 and 20 along with claims 7-10 and 19 is respectfully requested.

Claims 1, 6, 14 and 17 stand rejected under 35 USC §102(e) as being anticipated by Dickenson (U.S. Patent Application Publication No. 2004/0025052); and claims 15 and 16 stand rejected under 35 USC §103(a) as being unpatentable over Dickenson in view of Doshi (U.S. Patent Application Publication No. 2005/0102448). These rejections are traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in claims 1, 6 and 14-17 are not taught or suggested by Dickenson or Doshi whether taken individually or in combination with each other as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

Amendments were made to claims 1, 6 and 14-17 so as to more clearly describe features of the present invention. Particularly, amendments were made to these claims so as to more clearly recite that the present invention is directed to a disk array device and a method for controlling the disk array device wherein the disk array device includes a plurality of hard disk drives, at least one channel control section having a plurality of ports that are

connectable to at least one information processing device via cables, and that receives data input/output request from the at least one information processing device to the hard disk drives, at least one disk control section that is communicably connected to the hard disk drives and that sends data input/output request to the hard disk drives based on the data input/output request to the hard disk drives that are received by the channel control section and a shared memory that is accessible by the channel control section and the disk control section for reading and writing data therein.

According to the present invention the shared memory stores a port control table that sets control information indicating whether the ports are permitted for use, and the channel control section refers to the port control information set in the port control table such that when the number of ports in use is less than the number of ports available for use, the channel control section responds to a connection request received from the information processing device and when the number of ports in use is equal to the number of ports available for use, the channel control section does not respond to the connection request.

Thus, by use of the present invention as described above, the user can set the number of ports in the port control table as illustrated in Fig. 12 of the present application. Based on such setting by the user, the number ports in use is monitored so as to permit a comparison between the number of ports available and the number of ports in use. This comparison allows for a determination as to whether the channel control section can respond or not respond to a connection request from an information processing device.

The above described features of the present invention now more clearly recited in the claims are not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, the above described features of present invention now more clearly recited in the claims are not taught or suggested by Dickenson or Doshi whether taken individually or in combination with each other as suggested by the Examiner.

Dickenson teaches, for example, a device for securely controlling communications among or within computers, computer systems or computer networks. Dickenson teaches that the device includes a primary access port to which an owner computer is connectable to access shared computer resources, a secondary access port to which a non-owner computer is connectable to access the shared computer resources, a transfer port to which a shared computer resource is connectable to provide controlled access to that computer resource and a separate physical communication path to and from each access port and each transfer port where access permissions and restrictions for each communication path are set by the owner of the device through the primary access port.

Particularly, Dickenson teaches, for example, on page 9, in the right hand column, lines 16-28 that:

"in particular, an access control unit APxu and/or RUy issues a "link request/command processing" signal R/P to request clearance from processing component IDC to establish a path between an access port APx and a transfer port TPy or to qualify the bus signals required to safely process a command or message or subsequent data transfers. Controller IRC records and prioritizes the signals R/P and interrupts processing component according to parameters set by the

owner of DAC 10A. Processing component IDC responds to a signal R/P with a "grant/deny signal" G/D to indicate whether the required path or target is available and reserves the path access for the access controller unit APxu or RUy".

Thus, as is quite clear from the above, there is absolutely no teaching or suggestion in Dickenson of the above described features of the present invention now clearly recited in the claims. Particularly, Dickenson does not teach or suggest the use of a port control table as in the present invention in which control information is set indicating whether the plurality of ports are permitted for use and that the channel control section refers to the control information set in the port control table.

Further, there is no teaching or suggestion in Dickenson whether the channel control section conducts a particular response depending upon a comparison between the number of ports in use and the number of ports available for use as in the present invention. According to the present invention, depending upon this comparison the channel control section either responds to a connection request or does not respond to a connection request. Such features are clearly not taught or suggested by Dickenson.

Thus, Dickenson fails to teach or suggest a shared memory which stores a port control table that sets control information indicating whether the plurality of ports are permitted for use and the at least one channel control section refers to the control information set in the port control table as recited in the claims.

Further, Dickenson fails to teach or suggest that when the number of ports in use is less than the number of ports available for use, the at least one channel control section responds to a connection request received from the at

least one information processing device, and when the number of ports in use
is equal to the number of ports available for use, the at least one channel
control section does not respond to the connection request as recited in the
claims.

Therefore, the features of the present invention now more clearly recited in the claims are not taught or suggested by Dickenson whether taken individually or in combination with any of the other references of record. Accordingly, reconsideration and withdrawal of the 35 USC §102(e) rejection of claims 1, 6, 14 and 17 as being anticipated by Dickenson is respectfully requested.

The above described deficiencies of Dickenson are not supplied by any of the other references of record particularly Doshi whether taken individually or in combination with Dickenson. Thus, the combination of Dickenson and Doshi still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Doshi teaches a resource management apparatus and system that allows control of data flow associated with one of a plurality of ports sharing a resource. As per Dickenson, the port having the controlled data flow may have an actual usage value above a predetermined average shared resource usage associated with the plurality of ports. Particularly, Doshi teaches, for example, on page 1, paragraph [0012] that:

“the number of ports 122 may be selected as those ports that have exceeded a minimum guaranteed resource limit”.

Thus, as is quite clear from the above, there is no teaching or suggestion in Doshi that corresponds to the features of the present invention as now more clearly recited in the claims wherein a comparison is performed between the ports in use and the number of ports available for use so as to allow for the channel control section to respond or not respond as appropriate as in the present invention. Such features are clearly not taught or suggested by Doshi since in Doshi ports are selected by the amount the port exceeds the minimum guaranteed limit.

Thus, Doshi, the same as Dickenson, fails to teach or suggest that the shared memory stores a port control table that sets control information indicating whether the plurality of ports are permitted for use, and the at least one channel control section refers to the control information set in the port control table as recited in the claims.

Further, Doshi the same as Dickenson, fails to teach or suggest that when the number of ports in use is less than the number of ports available for use, the at least one channel control section responds to a connection request received from the at least one information processing device and when the number ports in use is equal to the number ports available for use, the at least one channel control section does not respond to the connection request as recited in the claims.

Therefore, since Doshi suffers from the same deficiencies as Dickenson relative to the features of the present invention as now more clearly recited in the claims, the combination of Dickenson and Doshi still fails to teach or suggest the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35

USC §103(a) rejection of claims 15 and 16 as being unpatentable over Dickenson in view of Doshi is respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1, 6 and 14-17.

In view of the foregoing amendments and remarks, applicants submit that claims 1-20 are in condition for allowance. Accordingly, early allowance of claims 1-20 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (IIP-5048).

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.



Carl I. Brundidge
Registration No. 29,621

CIB/jdc
(703) 684-1120